

Amdt. dated June 24, 2003
Reply to Office action of 3/24/2003

Serial N . 09/670,736
Docket No. POU920000103US1
Firm No. 0066.0080

REMARKS/ARGUMENTS

Status of co-pending U.S. patent applications

The status of co-pending U.S. patent applications have been updated.

The Examiner has rejected claims 1-5, 7, 9-13, 15, 17-21, and 23 under 35 U.S.C. 103(a) as being unpatentable over Shank (US 6,145,028) in view of Glassen (US 5,671,441). The Examiner has also rejected claims 6, 14, and 22 under 35 U.S.C. 103(a) as being unpatentable over Shank in view of Glassen and Spagnolo (US 6,526,024). Applicants traverse.

Claims 1, 9, and 17

Claims 1, 9, and 17 are a method, system, and article of manufacture for selecting one of multiple proposed paths to a device, comprising:

for each proposed path, determining a number of components the proposed path shares with existing paths to the device, wherein the components comprise points of failure such that if one component fails then the paths including the component fails; and

using the determined number of shared components for each proposed path to select one proposed path.

The Examiner has rejected claims 1, 9, and 17 under 35 U.S.C. 103(a) as being unpatentable over Shank in view of Glassen. Applicants traverse.

The cited Shank (column 6: lines 58-67, column 7, lines 17-35) discusses using a distribution policy to dynamically choose a path to send an I/O request among the available paths based on the work and I/O profile that exists on a system. The cited Shank also discusses selecting the I/O path with the smallest "queue" based on the number of pending I/O requests. The cited Shank further discusses other characteristics of the I/O request that may be used for

Amdt. dated June 24, 2003
Reply to Office action of 3/24/2003

Serial No. 09/670,736
Docket No. POU920000103US1
Firm No. 0066.0080

selecting a path. Nowhere does the cited Shank teach or suggest the claim requirements of using the determined number of shared components for each proposed path to select one proposed path, wherein the components comprise points of failure. Instead, the cited Shank discusses selecting a path with the smallest "queue" based on the number of pending I/O requests.

The cited Glassen (column 3: lines 25-35, column 1: lines 6-11) discusses a method for sharing I/O components and to detect all paths to each shared item so as to determine which attached I/O components are sharable by multiple channel paths in any I/O configuration, where the I/O components may be dynamic switches, control units or other devices, etc. Nowhere does the cited Glassen teach or suggest the claim requirements of using the determined number of shared components for each proposed path to select one proposed path, wherein the components comprise points of failure. Instead, the cited Glassen discusses determining which components can be shared in a plurality of paths.

Therefore, neither the cited Shank, nor the cited Glassen teach or suggest the claim requirements of using the determined number of shared components for each proposed path to select one proposed path, wherein the components comprise points of failure. Even if Shank and Glassen are combined, the combination does not teach or suggest the claim requirements of using the determined number of shared components for each proposed path to select one proposed path, wherein the components comprise points of failure.

For the above reasons, claims 1, 9, and 17 are patentable over the cited art.

Claims 2-7, 10-15, 18-24

The Examiner has also rejected pending claims 2-7, 10-15, 18-24 that depend on the pending independent claims 1, 9, and 17 respectively that the applicants submit as patentable. Accordingly claims 2-7, 10-15, 18-24 provide additional grounds of patentability over the cited art.

Amdt. dated June 24, 2003
Reply to Office action of 3/24/2003

Serial No. 09/670,736
Docket No. POU920000103US1
Firm No. 0066.0080

Claims 2, 3, 10, 11, 18, 19

Claims 2, 10, 18 depend from claims 1, 9, and 17 respectively, wherein using the determined number of shared components to select one proposed path comprises selecting the proposed path having a least number of shared components with existing paths, and wherein the selected proposed path is selected to provide an additional path to the device.

The cited Shank (col. 5: lines 5-19) discusses trying all possible paths to determine a path in the event of a failure of a path. Nowhere does the cited Shank teach or suggest the claim requirements of selecting the path having a least number of shared components with existing paths. Instead, the cited Shank discusses recovering from a failed path by routing via an alternate path.

For the above reasons, claims 2, 10, 18 provide additional grounds of patentability over the cited art.

Claims 3, 11, and 19 depend from claims 1, 9, and 17 respectively, wherein using the determined number of shared components to select one proposed path comprises selecting the proposed path having a greatest number of shared components with existing paths, wherein each proposed path comprises one existing path to the device, and wherein the selected proposed path is selected to be removed as one of the paths to the device.

The cited Shank (col. 5: lines 5-19) discusses trying all possible paths to determine a path in the event of a failure of a path. Nowhere does the cited Shank teach or suggest the claim requirements of selecting the path having a greatest number of shared components with existing paths, wherein the selected path is selected to be removed as one of the paths to the device. Instead, the cited Shank discusses recovering from a failed path by routing via an alternate path.

For the above reasons, claims 3, 11, 19 provide additional grounds of patentability over the cited art.

Amdt. dated June 24, 2003
Reply to Office action of 3/24/2003

Serial No. 09/670,736
Docket No. POU920000103US1
Firm No. 0066.0080

Claims 4, 12, 20

Claims 4, 12, 20 depend from claims 1, 9, and 17 respectively, wherein each path includes an adaptor in a computer and an interface port in the device, wherein determining the number of components the proposed path has in common with existing paths further comprises determining a number of components the adaptor in the proposed path shares with the adaptors of existing paths to the device and determining a number of components the proposed path shares with the interface ports of existing paths to the device.

The cited Shank (element 118, 120, 122, 130 of Fig 1) discuss I/O buses and a hardware adapter driver. Nowhere does the cited Shank teach or discuss the claim requirements of determining a number of components the adaptor in the proposed path shares with the adaptors of existing paths to the device and determining a number of components the proposed path shares with the interface ports of existing paths to the device.

The cited Glassen (col. 3: lines 25-35) discusses a method for sharing I/O components and to detect all paths to each shared item so as to determine which attached I/O components are sharable by multiple channel paths in any I/O configuration. Nowhere does the cited Glassen teach or suggest the claim requirements of determining a number of components the adaptor in the proposed path shares with the adaptors of existing paths to the device and determining a number of components the proposed path shares with the interface ports of existing paths to the device. Instead, the cited Glassen discusses determining which components can be shared in a plurality of paths.

Therefore, neither the cited Shank, nor the cited Glassen teach or suggest, either alone or in combination, the claim requirements of determining a number of components the adaptor in the proposed path shares with the adaptors of existing paths to the device and determining a number of components the proposed path shares with the interface ports of existing paths to the device.

For the above reasons, claims 4, 12, 20 provide additional grounds of patentability over the cited art.

Amdt. dated June 24, 2003
Reply to Office action of 3/24/2003

Serial No. 09/670,736
Docket No. POU920000103US1
Firm No. 0066.0080

Claims 5, 13, 21

Claims 5, 13, 21 depend from claims 1, 9, and 17 respectively, wherein each path further includes a source port and destination port on a switch, wherein the adaptor for a path connects to the source port of the switch and wherein the interface port for the path connects to the destination port of the switch, wherein determining the number of components the proposed path has in common with existing paths further comprises determining components on the switch the proposed path has in common with existing paths.

The cited Glassen (Dynamic switch of FIG 3, element 88 in FIG. 3) discuss a switch and a channel subsystem. Nowhere does the cited Glassen teach or suggest the claim requirements of determining the number of components the proposed path has in common with existing paths further comprises determining components on the switch the proposed path has in common with existing paths. The Examiner has not provided any objective teaching or a suggestion or proper motivation to indicate how Shank could be modified and combined with the cited Glassen to arrive at the claim requirements of determining the number of components the proposed path has in common with existing paths further comprises determining components on the switch the proposed path has in common with existing paths.

For the above reasons, claims 5, 13, 21 provide additional grounds of patentability over the cited art.

Currently amended claims 8, 16, 24

The Examiner objected to claims 8, 16, and 24 but indicated that claims 8, 16, and 24 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants have amended claims 8, 16, and 24 such that claims 8, 16, and 24 include all of the limitations of the base claim and any intervening claims.

For the above reasons, claims 8, 16, and 24 provide are patentable over the cited art.

Amdt. dated June 24, 2003
Reply to Office action of 3/24/2003

Serial No. 09/670,736
Docket No. POU920000103US1
Firm No. 0066.0080

New claims 25, 26, 27

Added claims 25, 26, and 27 depend from claims 1, 9, and 17 respectively and further require maintaining an index for selecting the proposed path, wherein the index indicates a likelihood that a path maintains availability in the event of failure of one of the components of the path. The additional requirements of dependent claims 25, 26, 27 are disclosed at least at lines 10-13 of page 10, original claims 8, 16, and 24 and pages 5-19 of the application.

The Examiner has indicated (on page 8, item 13) that the cited art fails to teach or suggest alone or in combination, maintaining and incrementing an availability index and using that availability index to select the proposed path. Therefore, the added new claims 25, 26, and 27 are patentable over the cited art.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-27 are patentable over the art of record. Applicants have rewritten three dependent claims in independent form and added three new claims. Should any additional fees be required, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

Dated: June 24, 2003

By: Rabindranath Dutta

Rabindranath Dutta
Registration No. 51,010

Please direct all correspondences to:

David Victor
Konrad Raynes Victor & Mann, LLP
315 South Beverly Drive, Ste. 210
Beverly Hills, CA 90212
Tel: 310-553-7977
Fax: 310-556-7984